

### **ARM 17.24.310**

17.24.310 BLASTING PLAN (1) Each application must contain a blasting plan for the proposed permit area. The plan must explain how the applicant intends to comply with the requirements of ARM 17.24.621 through 17.24.626 and 17.24.1260 through 17.24.1263, and must include the following:

- (a) types and approximate amounts of explosives to be used for each type of blasting operation to be conducted;
- (b) description of procedures and plans generally used for:
  - (i) drilling patterns, including size, number, depths, and spacing of holes;
  - (ii) charge and packing of holes;
  - (iii) types of fuses and detonation controls;
  - (iv) sequence and timing of firing holes;
- (v) a description of procedures and plans for recording of (i) through (iv) above and retention of those records;
- (c) description of blasting warning and site access control equipment and procedures;
- (d) description of types, capabilities, sensitivities, and locations of use of any blast monitoring equipment and procedures proposed to be used;
- (e) description of plans for recording and reporting to the department the results of preblasting surveys, if required;
- (f) description of unavoidable hazardous conditions for which deviations from the blasting schedule will be needed; and
- (g) a general description of structures to be protected and a discussion of design factors to be used to protect the public and to meet the applicable airblast, flyrock, and ground vibration standards in ARM 17.24.624.

(2) For underground mines the department may, on a case-by-case basis, waive any of the requirements in (1) of this rule that do not apply to underground blasting operations.

(History: 82-4-204, 82-4-205, MCA; IMP, 82-4-222, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

### **ARM 17.24.621-626**

#### 17.24.621 GENERAL REQUIREMENTS FOR USE OF EXPLOSIVES

(1) Each operator shall comply with all applicable state and federal laws in the use of explosives.

(2) Blasts that use more than 5 pounds of explosive or blasting agent must be conducted according to the schedule required by ARM 17.24.623.

(3) All blasting operations must be conducted by experienced, trained, and competent persons who understand the hazards involved. Each person responsible for blasting operations must possess a valid certification. See ARM 17.24.1260 through 17.24.1263. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

17.24.622 PREBLASTING SURVEY (1)(a) At least 30 days before initiation of blasting, the operator shall advise, in writing, all residents or owners of dwellings or other structures within 1/2 mile of the permit area how to request a preblasting survey.

(b) Any survey requested more than 10 days before the planned initiation of blasting must be completed by the operator before the initiation of blasting.

(c) On the request to the department by a resident or owner of a dwelling or structure that is located within 1/2 mile of any part of the permit area, the operator must promptly conduct a preblasting survey of the dwelling or structure and promptly submit a report of the survey to the department and to the person requesting the survey. If a structure is renovated or added to subsequent to a preblasting survey, then upon request to the department a survey of such additions and renovations must be performed in accordance with this section.

(2) The survey must determine the condition of the dwelling or structure and document any preblasting damage and other physical factors that could reasonably be affected by the blasting. Assessments of structures such as pipes, cables, transmission lines, and wells and other water systems must be limited to surface condition and readily available data. Special attention must be given to the preblasting condition of wells and other water systems used for human, animal, or agricultural purposes and to the quantity and quality of the water.

(3) A written report of the survey must be prepared and signed by the person who conducted the survey. The report may include recommendations of any special conditions or proposed adjustments to the blasting procedure that should be incorporated into the blasting plan to prevent damage. Copies of the report must be provided to the person requesting the survey and to the department. If the person requesting the survey disagrees with the results of the survey, he or she may notify, in writing, both the permittee and the department of the specific areas of disagreement. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

17.24.623 BLASTING SCHEDULE (1) The operator shall publish a blasting schedule at least 10 days, but not more than 20 days, before beginning a blasting program in which blasts that use more than 5 pounds of explosive or blasting agent are detonated. The blasting schedule must be published once in a newspaper of general circulation in the locality of the blasting site.

(a) Copies of the schedule must be distributed by mail to local governments and public utilities and by mail or delivered to each residence within 1 mile of the permit area described in the schedule. For the purposes of this section, the permit area does not include haul or access roads, coal preparation and loading facilities, and transportation facilities between coal excavation areas and coal preparation or loading facilities, if blasting is not conducted in these areas. Copies sent to residences must be accompanied by information advising the owner or resident how to request a preblasting survey.

(b) The operator shall republish and redistribute the schedule by mail at least every 12 months.

(2)(a) A blasting schedule must not be so general as to cover the entire permit area or all working hours, but it must identify as accurately as possible the location of the blasting sites and the time periods when blasting will occur.

(b) The blasting schedule must contain at a minimum:

- (i) name, address and telephone number of the operator;
- (ii) identification of the specific areas in which blasting will take place. Each specific blasting area described must be reasonably compact and not larger than 300 acres;
- (iii) days and time periods when explosives are to be detonated;
- (iv) methods to be used to control access to the blasting area;

- (v) types of audible warnings and all-clear signals to be used before and after blasting; and
- (vi) a description of unavoidable hazardous situations referred to in ARM 17.24.310(6) that have been approved by the department for blasting at times other than those described in the schedule.

(3)(a) Before blasting in areas or at times not in a previous schedule, the operator shall prepare a revised blasting schedule according to the procedures of (1) of this rule. Whenever a schedule has previously been provided to the owner or residents under ARM 17.24.623(1) with information on requesting a preblasting survey, the notice of change need not include information regarding preblast surveys.

(b) If there is a substantial pattern of non-adherence to the published blasting schedule as evidenced by the absence of blasting during scheduled periods, the department may require the operator to prepare a revised blasting schedule according to the procedures in (a) above. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.624 SURFACE BLASTING REQUIREMENTS (1) The department may limit the area covered, timing, and sequence of blasting, if such limitations are necessary and reasonable in order to protect the public health and safety or welfare.

(2) All blasting must be conducted between sunrise and sunset except that:

(a) The department may specify more restrictive time periods, based on public requests or other relevant information, according to the need to adequately protect the public from adverse noise or seismic disturbances.

(b) Blasting may, however, be conducted between sunset and sunrise if:

(i) a blast that has been prepared during the afternoon must be delayed due to the occurrence of an unavoidable hazardous condition and cannot be delayed until the next day because a potential safety hazard could result that cannot be adequately mitigated;

(ii) in addition to the required warning signals, oral notices are provided to persons within 1/2 mile of the blasting site; and

(iii) a complete written report of blasting at night is filed by the operator with the department not later than 3 days after the night blasting. The report must include a description in detail of the reasons for the delay in blasting including why the blast could not be held over to the next day, when the blast was actually conducted, the warning notices given, and a copy of the blast record required by ARM 17.24.626.

(3) Blasting must be conducted at times announced in the blasting schedule, except in those unavoidable hazardous situations, previously approved by the department in the permit application, whenever operator or public safety require unscheduled detonation. Any deviation from the times announced must be reported to the department not later than 3 days after the unavoidable blast. A complete description of the unavoidable hazardous situation must accompany the report.

(4) Warning and all-clear signals of different character that are audible at all points within a range of 1/2 mile from the point of the blast must be given. Each person within the permit area and each person who resides or regularly works within 1/2 mile of the permit area must be notified of the meaning of the signals through appropriate instructions. These instructions must be periodically delivered or otherwise communicated in a manner that can be reasonably expected to inform such persons of the meaning of the signals. The operator shall maintain signs in accordance with ARM 17.24.524.

(5) Access to an area possibly subject to flyrock from blasting must be regulated to protect the public and livestock. Blasting must not eject flyrock onto property outside the permit area. Access to the area must be controlled to prevent the presence of livestock or unauthorized personnel during blasting and until an authorized representative of the operator has reasonably determined:

- (a) that no unusual circumstances, such as imminent slides or undetonated charges, exist; and
- (b) that access to and travel in or through the area can be safely resumed.

(6)(a) Airblast must be controlled so that it does not exceed the values specified below at any dwelling, public building, school, church, or commercial, public, or institutional structure, unless the structure is owned by the operator and is not leased to any other person. If a building owned by the operator is leased to another person, the lessee may sign a waiver relieving the operator from meeting the airblast limitations of this section.

<u>Lower Frequency limit of measuring system, Hertz (Hz) (+3dB)</u>	<u>Maximum level in decibels (dB)</u>
0.1 Hz or lower - flat response . . . . .	134 peak.
2 Hz or lower - flat response . . . . .	133 peak.
6 Hz or lower - flat response . . . . .	129 peak.
<u>C-weighted, slow response . . . . .</u>	<u>105 peak dBC.</u>

If necessary to prevent damage, the department shall specify lower maximum allowable airblast levels than those above.

(b) In all cases, except the C-weighted, slow-response system, the measuring systems used must have a flat frequency response of at least 200 Hz at the upper end. The C-weighted system must be measured with a Type 1 sound level meter that meets the standard American national standards institute (ANSI) S1.4-1971 specifications. The ANSI S1.4-1971 is hereby incorporated by reference as it exists on April 1, 1980. Copies of this publication are on file with the Department of Environmental Quality, PO Box 200901, Helena, MT 59620-0901.

(c) The operator may satisfy the provisions of this section by meeting any of the 4 specifications in the chart in (a) above.

(d) The operator shall conduct periodic monitoring to ensure compliance with the airblast standards. The department may require an airblast measurement of any or all blasts, and may specify the location of such measurements, except as noted in (a) above.

(7) Except where lesser distances are approved by the department, based upon a preblasting survey, seismic investigation, or other appropriate investigation, blasting must not be conducted within:

(a) 1,000 feet of any public, private or institution building, including any dwelling, school, church, hospital, or nursing facility; and

(b) 500 feet of facilities including, but not limited to, disposal wells, petroleum or gas storage facilities, municipal water storage facilities, fluid transmission pipelines, gas or oil collection lines, or water and sewage lines or any active or abandoned underground mine.

(8) If otherwise approved, a blast design, including measures to protect the above facilities, must be submitted which contains the information required in ARM 17.24.310 and signed by a certified blaster.

(9) Flyrock, including blasted material traveling along the ground, must not be cast from the blasting vicinity more than half the distance to the nearest dwelling or other occupied

structure and in no case beyond the line of property owned or leased by the permittee, or beyond the area of regulated access required under (5) of this rule.

(10) Blasting must be conducted to prevent injury to persons, damage to public or private property outside the permit area, adverse impacts on any underground mine, and change in the course, channel, or availability of ground or surface waters outside the permit area.

(11) In all blasting operations, except as otherwise authorized in this section, the maximum peak particle velocity must not exceed the following limits at the location of any dwelling, public building, school, church, or commercial, public, or institutional structure:

Distance (D) from the blasting site, in feet	Maximum allowable peak particle velocity (V max) for ground vibration, in inches/second	Scaled-distance factor to be applied without seismic monitoring (Ds )
0 to 300	1.25	50
301 to 5,000	1.00	55
5,001 and beyond	0.75	65

(a) Peak particle velocities must be recorded in 3 mutually perpendicular directions. The maximum peak particle velocity is the largest of any of the 3 measurements.

(b) The department shall reduce the maximum peak velocity allowed, if it determines that a lower standard is required because of density of population or land use, age or type of structure, geology or hydrology of the area, frequency of blasts, or other factors.

(12) If blasting is conducted in such a manner as to avoid adverse impacts on any underground mine and changes in the course, channel, or availability of ground or surface water outside the permit area, then the maximum peak particle velocity limitation of (11) of this rule does not apply at the following locations:

(a) at structures owned by the operator and not leased to another party; and

(b) at structures owned by the operator and leased to another party, if a written waiver by the lessee is submitted to the department prior to blasting.

(13) An equation for determining the maximum weight of explosives that can be detonated within any 8-millisecond period is in (14) of this rule. If the blasting is conducted in accordance with this equation, the peak particle velocity is deemed to be within the limits specified in (11) of this rule.

(14) The maximum weight of explosives to be detonated within any 8-millisecond period may be determined by the formula  $W=(D/D_s)^2$  where W=the maximum weight of explosives, in pounds, that can be detonated in any 8-millisecond period; D=the distance, in feet, from the blast to the nearest public building or structure, dwelling, school, church, or commercial or institutional building or structures, except as noted in (12) of this rule; and D<sub>s</sub>=the scaled distance factor, using the values identified in (11) of this rule. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1990 MAR p. 936, Eff. 5/18/90; TRANS, from DSL, 1996 MAR p. 2852.)

17.24.625 SEISMOGRAPH MEASUREMENTS (1) Whenever a seismograph is used to monitor the velocity of ground motion and the peak particle velocity limits of ARM 17.24.624(11) are not exceeded, the equation in ARM 17.24.624(14) need not be used. If that equation is not used by the operator, a seismograph record must be obtained for each shot.

(2) The use of a modified equation to determine maximum weight of explosives per delay for blasting operations at a particular site may be approved by the department, on receipt of a petition accompanied by reports including seismograph records of test blasting on the site. The department may not approve the use of a modified equation if the peak particle velocity for the limits specified in ARM 17.24.624(11) are exceeded, meeting a 95% statistical confidence level.

(3) The operator may use the ground vibration limits described in the blasting-level chart referenced in 30 CFR 816.67(d)(4) as an alternative to (1) and (2) of this rule, upon approval by the department.

(4) The department may require a seismograph record of any or all blasts and may specify the location at which the measurements are to be taken. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.626 RECORDS OF BLASTING OPERATIONS A record of each blast, including seismograph records, must be retained for at least 3 years and must be available for inspection by the department and the public on request. Blasting records must be complete and accurate at the time of inspection. The record must contain the following data:

- (1) name of the operator conducting the blast;
- (2) location, date, and time of the blast;
- (3) name, signature, and license number of blaster-in-charge;
- (4) direction and distance, in feet, to the nearest dwelling, school, church, or commercial, public, or institutional building or structure either:
  - (a) not located in the permit area; or
  - (b) not owned nor leased by the person who conducts the mining activities.
- (5) weather conditions, including temperature, wind direction, and approximate velocity;
- (6) type of material blasted;
- (7) number of holes, burden, and spacing;
- (8) diameter and depth of holes;
- (9) types of explosives used;
- (10) total weight of explosives used;
- (11) maximum weight of explosives detonated within any 8-millisecond period;
- (12) maximum number of holes detonated within any 8-millisecond period;
- (13) initiation system;

- (14) type and length of stemming;
- (15) mats or other protections used;
- (16) type of delay detonator and delay periods used;
- (17) sketch of the delay pattern;
- (18) number of persons in the blasting crew;
- (19) seismographic and airblast records, where required, including:
  - (a) the calibration signal of the gain setting or certification of annual calibration;
  - (b) seismographic reading, including exact location of seismograph and its distance from the blast, airblast reading, dates and times of readings;
  - (c) name of the person taking the seismograph reading; and
  - (d) name of the person and firm analyzing the seismographic record; and
- (20) Reasons and conditions for each blast occurring outside the time frames published in the blasting schedule. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

## **ARM 17.24.1260-1263**

### **17.24.1260 REQUIREMENTS FOR THE CONDUCT OF BLASTING OPERATIONS**

(1) Each operator shall conduct each blasting operation under direction of an individual who has been certified by the department pursuant to ARM 17.24.1261 and who is familiar with the operation's blasting plan and site-specific blasting performance standards. The certified blaster's responsibilities include, but are not limited to, determining blasting pattern, hole pattern, type and quantity of explosives, maintenance of blasting records, and safety of employees involved in the storage, transportation, and use of explosives.

(2) A certified blaster may not delegate the direction of blasting operations to any individual who is not a certified blaster.

(3) A certified blaster and at least 1 other person must be present during the detonation of each blast.

(4) A certified blaster shall immediately exhibit on-site or at the mine office his certificate to any authorized representative of the department or the federal coal regulatory authority upon request.

(5) An operator shall require that persons who are not certified blasters receive direction and on-the-job training from a certified blaster before those persons assist in the storage, transportation, and use of explosives. (History: 82-4-204(4), 82-4-205(7), 82-4-231(10)(e), MCA; IMP, 82-4-231 (10)(e), MCA; NEW, 1984 MAR p. 1373, Eff. 9/14/84; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

**17.24.1261 CERTIFICATION OF BLASTERS** (1) A person seeking certification as a blaster shall submit to the department an application on a form provided by the department.

(a) The applicant shall include a verifiable statement that he has successfully completed a training course, provided by the department, the operator, or other person, meeting the requirements of ARM 17.24.1262(2) and incorporating the training manual prepared by the department.

(b) The department shall make available to the public, upon request and payment of a reasonable fee, a copy of the training manual. The training manual must be updated as necessary.

(2) The department shall issue a blaster certification to each applicant who:

- (a) has 2 years field experience in blasting;
- (b) has successfully completed a 24-hour blaster training course meeting the requirements of ARM 17.24.1262; and
- (c) achieves a grade of 80% or higher on an examination administered by the department. The examination must, at a minimum, reflect the training manual prepared by the department and examine in the topics set forth in ARM 17.24.1262. The examination must also incorporate an equally weighted section that covers practical field experience on blasting procedures and occurrences. An applicant who fails may retake the examination. If the applicant fails the examination a second time, he shall successfully complete a blaster training course again and reapply for certification before retaking the examination.
- (3) Blaster certifications are non-transferable.
- (4) A certification shall expire 3 years after issuance. The department shall recertify if the blaster:
  - (a) submits to the department, at least 60 days prior to the expiration of his certification, an application for recertification on a form provided by the department;
  - (b) has documented successful completion of 16 hours of refresher training meeting the requirements of ARM 17.24.1262 during the certification period; and
  - (c) has conducted or directed blasting operations within the 12 months immediately preceding the date of application for recertification or receives a grade of 80% or better on a recertification examination. The only new developments that the department may include in the recertification examination are those that have been included in the updates to the training manual. The applicant for recertification may take the examination twice.
- (5) The department shall certify any person who has a current state or federal blaster certificate under any program approved by the federal coal regulatory authority under 30 CFR Part 850 and can demonstrate that he or she has met requirements equivalent to those in (1) and (2) above. The period of the department's certification must be coextensive with the period of certification under the other program but may not exceed 3 years. (History: 82-4-204(4), 82-4-205(7), 82-4-231(10)(e), MCA; IMP, 82-4-231(10)(e), MCA; NEW, 1984 MAR p. 1373, Eff. 9/14/84; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.1262 BLASTER TRAINING COURSES (1) A blaster training course must provide appropriate training in and discuss practical applications of:

- (a) use of explosives, including:
  - (i) selection of the type of explosive to be used;
  - (ii) determination of the properties of explosives which will produce desired results at an acceptable level of risk;
  - (iii) handling, transportation and storage;
- (b) design of blasts, including:
  - (i) geologic and topographic considerations;
  - (ii) blast hole design;
  - (iii) pattern design, field layout, and timing of blast holes;
  - (iv) field applications;
- (c) loading of blast holes, including priming and boosting;
- (d) use of initiation systems and blasting machines;
- (e) effects of blasting vibrations, airblast, and flyrock, including:
  - (i) monitoring techniques;
  - (ii) methods to control adverse effects;



- (f) use of secondary blasting;
- (g) discussion of current federal and state rules applicable to the use of explosives;
- (h) maintenance of blast records;
- (i) determination of blasting schedules;
- (j) design and use of preblasting surveys including availability, coverage, and use of in-blast design;
- (k) requirements of blast plans;
- (l) signs, warning signals, and site control;
- (m) identification of unpredictable hazards including:
  - (i) lightning;
  - (ii) stray currents;
  - (iii) radio waves;
  - (iv) misfires; and
- (n) updates to the department's training manual. (History: 82-4-204(4), 82-4-205(7), 82-4-231(10)(e), MCA; IMP, 82-4-231(10)(e), MCA; NEW, 1984 MAR p. 1373, Eff. 9/14/84; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

#### 17.24.1263 SUSPENSION OR REVOCATION OF BLASTER CERTIFICATION (1)

The following are grounds for suspension or revocation of blaster certification:

- (a) noncompliance with any order of the department;
  - (b) conviction of criminal possession or sale of dangerous drugs;
  - (c) unlawful use in the work place of, or current addiction to, alcohol, narcotics, or other dangerous drugs;
  - (d) violation of any state or federal explosives laws or regulations;
  - (e) providing of false information or a misrepresentation to obtain certification;
  - (f) failure to present blaster certification upon request of the department or federal coal regulatory authority personnel;
  - (g) delegating responsibility to any individual who is not a certified blaster;
  - (h) storage, transportation, or use of explosives in a manner that could threaten life or limb or cause environmental harm
- (2) If the department finds that a certified blaster has committed 1 or more of the acts prohibited in (1) of this rule, the department may, and upon a finding of willful conduct shall, suspend or revoke the certification of the blaster. The department shall determine whether to suspend or revoke and the length of suspension on the basis of determination of reasonable necessity to protect human life or limb and to prevent environmental degradation.

(3) If the department has probable cause to believe that a certified blaster has committed any of the acts prohibited in (1) of this rule and that the blaster's certification should or must be suspended or revoked, the department shall notify the blaster and his employer in writing by certified mail at the address contained in the blaster's application for certification or at a subsequent address of which the blaster has notified the department in writing. The blaster does not defeat service by refusing to accept or failing to pick up the notice. The notice must advise the blaster of the department's proposed action, the alleged facts upon which the proposed action is based, and the blaster's right to request a hearing. If the department determines that suspension of the blaster's certification is reasonably necessary in order to protect human life or limb or the environment, it may suspend the certification until the hearing is held; provided, however, that no such suspension may be in effect for longer than 45 days. At the close of the hearing, the hearing officer may, based on a finding that the department will probably prevail and that continued suspension is reasonably necessary, continue the suspension until a final decision is made. (History: 82-4-204(4), 82-4-205(7), 82-4-231 (10)(e), MCA; IMP, 82-4-231(10)(e), MCA; NEW, 1984 MAR p. 1373, Eff. 9/14/84; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)